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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002DE113	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/005670	International filing date (day/month/year) 30 May 2003 (30.05.2003)	Priority date (day/month/year) 05 June 2002 (05.06.2002)
International Patent Classification (IPC) or national classification and IPC C08K 5/20, C07C 231/02		
Applicant CLARIANT GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12 November 2003 (12.11.2003)	Date of completion of this report 08 September 2004 (08.09.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

Translation

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International application No.

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
pages _____ 1-14 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____ 1-20 _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims		YES
	Claims	1-20	NO
Inventive step (IS)	Claims		YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims		NO

2. Citations and explanations

Novelty and Inventive Step (PCT Article 33(2) and (3))

Document D1 (DE-A-2730175) relates to high-melting diamide waxes for use *inter alia* in asphalts produced by reacting diamines with a mixture of mono- and dicarboxylic acids (pages 3, 4). Examples 1 to 5 describe the reaction of ethylene diamine or hexamethylene diamine with mixtures of fatty acids.

Document D2 (DE-A-19929962) claims the use of emulsifiers containing a) fatty acid amidoamines and b) cation polymers in order to produce aqueous bitumen emulsions (claim 1). Fatty acid amidoamines are synthesized preferably by condensing fatty acids with polyvalent amines. Example H1 describes the reaction of tallow fatty acid with N,N-dimethyl-1,3-propanediamine (DAPA). The reaction product has an acid number of < 5 mg KOH/g. The amidoamine is then used to produce an aqueous bitumen emulsion (example 2).

Document D3 (WO-A-0068329) describes an aqueous asphalt emulsion containing an emulsifier composed of the reaction product of a fatty acid and an ethylene polyamine (claims 1, 5, 7, 9, 28, 32-34). The fatty acid is preferably a

saturated or unsaturated mixture of fatty acids with at least 75% C₁₄-C₂₂ or C₁₄-C₁₆ fatty acids (claim 10). Example 5-1 (table 5) describes an asphalt emulsion containing an amidoamine of tallow fatty acid and ethylene diamine.

Document D4 (US-A-2901370) relates to an additive for bitumen that is obtained by reacting a tall oil fatty acid with an amine mixture containing ethylene diamine (column 2, line 60 to column 3, line 16; claims 1 and 2).

Document D5 (DE-A-934767) discloses a method for producing wax-like fatty acid diamides, a long-chain fatty acid being reacted with cycloaliphatic diamines to form diamines. Examples 1-3 describe the reaction of mixtures of long-chain fatty acids, diamines and dicarboxylic acids to form reaction products having acid numbers of between 2 and 3. The ratio of fatty acid to diamine is 2:1 in example 2. A cycloaliphatic diamine is used in combination with an aliphatic diamine in example 3.

Example 3 in document D6 (DE-A-932965) describes reacting a trans-fatty acid with a cycloaliphatic diamine until the acid number has fallen to 0.

Document D7 (GB-A-677935) claims a bitumen composition containing a carboxylic acid polyamine reaction product, wherein tall oil (a mixture of fatty acids and oxy-acids) is preferred as the acid and ethylene diamine is preferred as the polyamine (examples III and IV; claims 1, 6, 10, and 13).

In the present application, the claimed reaction product is defined by parameters, namely by the acid and alkali numbers.

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The documents mentioned above do not explicitly disclose these fat indices in combination. The acid number of the reaction product is discussed only in D2, D5 and D6.

However, since in this case the starting products and the production methods are identical to those according to the application, it can be assumed that the known and the claimed results are identical, i.e. these parameters are inherent in the products according to the prior art.

As a result, documents D1 to D7 are considered prejudicial to the novelty of the subject matter of claims 1-20.

Therefore, neither the novelty nor the inventive step of the present application within the meaning of PCT Article 33(2) and (3) can be acknowledged.